The role of dermatosurgery in treating non-melanoma skin cancers: Current trends and future directions.

Luc Wilde*

Department of Dermatology, KU Leuven, Belgium

Introduction

Non-melanoma skin cancers (NMSCs) are among the most common malignancies globally, with basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) being the most prevalent types. Dermatosurgery, which encompasses surgical techniques specifically tailored for skin cancer treatment, plays a crucial role in managing these conditions [1].

This article explores the current trends in dermatosurgery for NMSCs and examines potential future directions in this evolving field. Mohs micrographic surgery remains the gold standard for treating non-melanoma skin cancers, particularly in cosmetically sensitive areas such as the face and ears [2].

This technique involves the step-by-step excision of cancerous tissue, with immediate microscopic examination of the margins to ensure complete removal of cancer cells while preserving healthy tissue. Mohs surgery boasts high cure rates and minimizes the risk of recurrence, making it a preferred choice for many cases [3].

Recent advancements in imaging technologies, such as confocal microscopy and optical coherence tomography (OCT), have significantly enhanced the ability to visualize skin cancer lesions. These non-invasive imaging techniques allow for better delineation of tumor margins and assist in surgical planning, potentially reducing the need for multiple excisions and improving patient outcomes [4].

Following excision, reconstructive dermatosurgery plays a vital role in restoring the affected area's appearance and function. Techniques such as local flaps, skin grafts, and advanced closure methods are employed to achieve optimal cosmetic results and functional recovery. The integration of aesthetic principles into reconstructive procedures is increasingly emphasized to enhance patient satisfaction [5].

While traditional surgical methods remain prevalent, there is a growing interest in minimally invasive approaches for treating NMSCs. Techniques such as cryosurgery, electrosurgery, and topical chemotherapy are being explored for their efficacy in treating superficial cancers or in cases where surgery may not be feasible. These approaches offer advantages in terms of reduced recovery times and lower risk of complications [6].

The integration of precision medicine into dermatosurgery holds promise for tailoring treatment to individual patient profiles. Advances in genomics and molecular biology are expected to enable more personalized approaches, allowing for the selection of targeted therapies and optimizing surgical outcomes based on genetic and molecular characteristics of the tumors [7].

Research is ongoing to refine surgical techniques and improve outcomes. Innovations such as robotic-assisted surgery and 3D-printed surgical tools may enhance precision and efficiency in dermatosurgical procedures. These advancements could potentially reduce surgical time, improve accuracy, and minimize postoperative complications [8].

There is a growing focus on incorporating patient perspectives into the treatment process. Future trends in dermatosurgery are likely to emphasize patient education, shared decision-making, and support for psychosocial aspects of skin cancer treatment. Addressing these factors is crucial for improving overall patient experience and satisfaction [9].

The application of AI and machine learning in dermatosurgery is an exciting frontier. AI algorithms are being developed to assist in the detection, diagnosis, and surgical planning of skin cancers. These technologies have the potential to enhance diagnostic accuracy, predict surgical outcomes, and streamline surgical workflows [10].

Conclusion

Dermatosurgery remains a cornerstone in the treatment of non-melanoma skin cancers, with ongoing advancements driving improvements in techniques and outcomes. Current trends highlight the importance of Mohs surgery, advanced imaging, and reconstructive strategies, while future directions point towards precision medicine, innovative surgical technologies, and patient-centered approaches. As the field continues to evolve, these developments promise to enhance the effectiveness and patient experience of dermatosurgical care.

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***Correspondence to:** Luc Wilde, Department of Dermatology, KU Leuven, Belgium, E mail: luc.wilde@leuven.be

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